Title (en)

Active optical ridge waveguide semiconductor element.

Title (de)

Aktives optisches Halbleiter-Stegwellenleiterelement.

Title (fr)

Composant optique actif semi-conducteur à ruban.

Publication

**EP 0642041 A1 19950308 (FR)**

Application

**EP 94401919 A 19940830**

Priority

FR 9310468 A 19930902

Abstract (en)

A guiding structure (16, 18, 20, 22) of this component includes a core structure (18) extending up to coupling faces (8, 10). It is composed of at least three high-index layers (30, 34, 38) having refractive indices which are higher compared to the surrounding media (16, 32, 36, 20) in order to increase, in these layers, the power density of light having to undergo processing such as an amplitude modulation. These high-index layers have compositions enabling them to perform this treatment in response to an electrical excitation while still having thicknesses greater than those of quantum wells. These layers are separated by dilution layers (32, 36) having a lower refractive index and having greater thicknesses such that a single propagation mode of the light is guided by the guiding structure. This mode has a thickness suitable for coupling to an external optical element while at the same time confining most of the light power in the thickness of the core structure in order to promote the processing. <IMAGE>

Abstract (fr)

Une structure guidante (16, 18, 20, 22) de ce composant inclut une structure de coeur (18) s'étendant jusqu'à des faces de couplage (8, 10). Elle comporte au moins trois couches à haut indice (30, 34, 38) présentant des indices de réfraction accrus par rapport aux milieux environnants (16, 32, 36, 20) pour augmenter dans ces couches la densité de puissance d'une lumière devant subir un traitement tel qu'une modulation d'amplitude. Ces couches à haut indice ont des compositions leur permettant de réaliser ce traitement en réponse à une excitation électrique tout en ayant des épaisseurs supérieures à celles de puits quantiques. Elles sont séparées par des couches de dilution (32, 36) à indice de réfraction plus faible et à épaisseurs plus grandes telles qu'un seul mode de propagation de la lumière soit guidé par la structure guidante. Ce mode présente une épaisseur adaptée à un couplage à un élément optique externe tout en confinant une majorité de la puissance de la lumière dans l'épaisseur de la structure de coeur pour favoriser le traitement. <IMAGE>

IPC 1-7

**G02B 6/122**; G02F 1/025; G02B 6/30

IPC 8 full level

**G02B 6/122** (2006.01); **G02B 6/30** (2006.01); **G02F 1/025** (2006.01); G02B 6/12 (2006.01)

CPC (source: EP US)

**G02B 6/1228** (2013.01 - EP US); **G02B 6/305** (2013.01 - EP US); **G02F 1/025** (2013.01 - EP US); G02B 2006/12097 (2013.01 - EP US); G02F 2201/063 (2013.01 - EP US)

Citation (search report)

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DOCDB simple family (application)

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